National Aeronautics and Space Administration

MARSHALL STAR

Serving the Marshall Space Flight Center Community

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NASA continues assessment of next shuttle mission

Because of an ongoing review of the space shuttle's flow control valves, NASA managers are rescheduling meetings to assess the launch readiness of shuttle Discovery's STS-119 mission to the International Space Station.

The Space Shuttle Program will hold a meeting Feb. 13 to review data and determine whether to move forward with a flight readiness review on Feb. 18. The official launch date will be set at the readiness review, but for planning purposes, launch is scheduled for no earlier than Feb. 22.

There are three flow control valves that channel gaseous hydrogen from the shuttle's main engines to the external fuel tank. One of these valves in shuttle Endeavour was found to be damaged after its mission in November. As a precaution, Discovery's three gaseous hydrogen valves were removed, inspected and reinstalled.

STS-119 will be Discovery's 36th mission and the 28th shuttle flight dedicated to station assembly and maintenance.

Marshall to host rocketeering challenge in April

Students nationwide design, build rockets for '09 University Student Launch Initiative

By Rick Smith

Twenty student teams, selected by NASA from colleges and universities around the country, are spending the winter building sophisticated rockets they will launch high over Alabama in April.

Emmett Given/MSFC

Students from Utah State University in Logan track their rocket's progress toward victory in the 2007-2008 University Student Launch Initiative. Utah State will defend its title this year.

The 2008-2009 University Student Launch Initiative will be held April 18 at Bragg Farms in Toney, Ala. Student teams will bring their rockets to the Marshall Space Flight Center earlier that week, where Marshall engineers will conduct formal vehicle design reviews before the students take part in the all-day launch.

The initiative, managed by the Marshall Center's Academic Affairs Office, is designed to inspire young people to pursue careers

*See **Rockets** on page 4*

Marshall Center team members wield sledgehammers

By Dauna Coulter

The Marshall Space Flight Center's Carole McLemore has been working at the end of a sledgehammer opposite a big pile of rocks – strange work for a NASA project manager.

"I call it choppin' rocks," says McLemore, who manages Marshall's Lunar Regolith Simulant Team. "The guys keep correcting me. 'It's bustin' rocks, Carole,' they say."

Whether choppin' or bustin', what's she doing with a sledgehammer in her hands?

She's making simulated lunar regolith – fake moon dirt. Engineers from the Marshall Center, NASA's Glenn Research Center in Cleveland, and the U.S. Geological Survey traveled

*See **Sledgehammer** on page 3*

Marshall's Networks, Telecom and Desktop Services Office keeps NASA community tuned in to technology

By Megan Norris Davidson

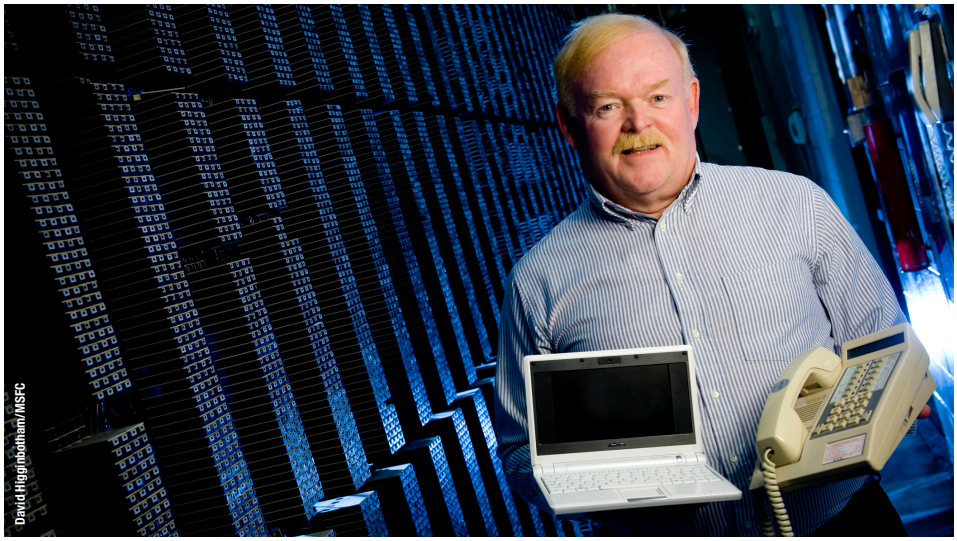
The Networks, Telecom and Desktop Services Office at the Marshall Space Flight Center may be more "behind the scenes" than other organizations, but the communications services it provides to Marshall and NASA are at the forefront of keeping colleagues connected.

The team supplies a range of information technology products and services – including phones, network services, teleconferencing and computers – to the Marshall Center, the Michoud Assembly Facility in New Orleans and the National Space Science and Technology Center in Huntsville. Based at Marshall, the team provides wide-area network connectivity and services to all NASA facilities. The team also ensures NASA employees and astronauts working and training in Russia are supplied with desktop computers, phones and network services.

Dozens of contractors, supporting the team, are stationed at these sites to provide technical assistance. "When people need information technology support, we are the people behind the scenes making that happen," said Terry Luttrell, manager of the Networks, Telecom and Desktop Services Office, part of Marshall's Office of the Chief Information Officer.

Luttrell also serves as the Radio Frequency Spectrum manager for Marshall and Michoud. In this role, he helps Marshall programs and projects get the proper radio frequency licensing for testing or spaceflight from the National Telecommunications and Information Administration, part of the U.S. Department of Commerce.

Luttrell assists Marshall's Ares Projects on radio frequency coordination and licensing for the Ares I-X test flight. Planned for 2009, the test flight will bring NASA one step closer to its exploration goals of returning to the moon and traveling to other destinations in the solar system. "Our office is making sure frequencies are working properly to be able to send out all flight data to ground stations and to the Tracking and Data Relay Satellite System – a NASA-developed communication signal relay system," he said.



Terry Luttrell, manager of the Networks, Telecom and Desktop Services Office, part of Marshall's Office of the Chief Information Officer, shows a sample of products and services the office provides to the Marshall Center and other NASA organizations. In the background, in Building 4207, is part of an intricate system that makes telephone service possible at Marshall.

The Networks, Telecom and Desktop Services Office has three teams: Infrastructure, Desktop and NASA Integrated Services Network. The Infrastructure team provides telephone service and local area network service to Marshall, Michoud and the National Space Science and Technology Center. The Emergency Warning System and the Help Desk – a call center for information technology and facilities issues – also are maintained by the group. It manages Marshall's fiberoptic cable system, making communications from building to building possible. "Our team supports all computer and telephone users at Marshall – from the wires in the ground to computers' 'logon' prompts," said Linda Rawlins, the team lead. "The bottom line is to make all our network services efficient and helpful."

The Desktop team provides Marshall with desktop, laptop and engineering work stations, cell phones, printers and other devices. "Our group ensures our customers have the ability to access e-mail, create office automation documents such as Word and PowerPoint, and generate engineering data," said Burt Bright, the team lead. "Our goal is to make sure that our customers have what they need to do the jobs necessary to ensure NASA's success."

The NASA Integrated Services Network team offers wide-area network services to all NASA centers and most NASA programs and projects. Services include mission-critical voice, video and data; audio, video and Web conferencing; and data networks that support e-mail, Internet and other applications. "With a broad portfolio of services and a variety of customer needs, providing high-quality services is challenging," said Beth Paschall, the team lead. "I'm fortunate to be part of a proactive team that focuses on helping its customers achieve their missions."

Luttrell said the three teams are working toward an important operation: creating one network for the entire NASA community. "Every NASA center manages its own local area network and wireless system, which makes it difficult to work from center to center. We want to combine all the networks and manage it as one big entity. We can't continue our mission if we aren't all plugged in."

Davidson, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

to Stillwater Mine in Nye, Mont., to develop a realistic simulant in support of NASA's future crewed lunar exploration.

"We need just the right kind of rocks to make this stuff," McLemore says. "We've made four trips to the Stillwater Mine since 2006.

"NASA plans to send humans to the moon, and the place is filled with gritty dust and powder that sticks to space suits, equipment – to anything and everything," she says. "It can even be inhaled into lungs. So we need high-fidelity simulants to work with here on Earth to learn how to work in the real thing up there on the moon. There simply aren't enough Apollo samples of real moon regolith for all the researchers."

Marshall team members break big rocks into manageable chunks, dump selected pieces into buckets and lug the buckets to pickup trucks. The trucks carry the rocks down the mountain for loading onto 18-wheelers that transport tons of the material to the U.S. Geological Survey in Denver. There the rocks are crushed and ground, and small amounts of natural minerals are blended in according to a well-researched recipe to approximate moon dust and moon dirt.

Carole McLemore, right, project manager for Marshall's Regolith Simulant Team, "chops" rocks at Stillwater Mining Complex in Nye, Mont., as Marshall's John Fikes, center, watches. In the background, Glenn Research Center and U.S. Geological Survey team members, along with Stillwater Mine workers, assist and examine samples.

According to Christian Schrader, a BAE Systems geologist supporting Dr. Doug Rickman, chief geologist on the team, researchers use simulant to look for ways to make useful things from moon dirt. On the moon and later on Mars, local resources are going to be crucial to astronauts who can't remain wholly dependent on Earth for supplies.

"For one thing, oxygen can be extracted from moon dirt for humans to breathe," says Schrader. "And the oxygen – along with the hydrogen in the dirt, rocks and possibly in ice at the lunar poles – can be used to generate electricity using fuel cells, producing drinkable water as a by-product. Hydrogen and oxygen can also be used to make rocket propellant."

Certain minerals also can be mined to make tools and spare parts on the moon. The less fuel, tools and other supplies the rocket has to carry, the less a rocket trip costs.

According to Schrader, Stillwater has "the right stuff" to use as feedstock in creating the simulant so vital to lunar research.

"Some of the rocks at the mine are 2.7 billion years old," Schrader says. "A huge magma chamber formed under the ground there. The magma crystallized over time and formed thick layers of rock we call anorthosite. The geology at Stillwater is roughly analogous to how the moon's highland crust crystallized and cooled, so it's a great place for us to go rock collecting."

Dr. Doug Rickman, center, chief project scientist and geologist, lugs rocks down the mountainside at Stillwater Mine.

Choosing the right rocks for the regolith is not something just anyone can do. That's why these project managers and scientists walk the side of a mountain and hand pick the samples, which sometimes requires busting big rocks.

"We literally examine the pieces with a magnifying glass to maintain the fidelity of the product," Schrader says.

"It's not easy work," he says. "Sometimes arctic winds blow down off the mountains and pummel us. It can be brutal."

The Stillwater Mine management has helped the team.

"They've been great," McLemore says. "They've given us the rocks and donated time and trucks to help us."

Marshall's Regolith Simulant Team members are McLemore, Schrader, Rickman, John Fikes, Hans Hoelzer, Kathy Fourroux and Lynn Machamer. Other team members are from the U.S. Geological Survey, the Glenn Center and the Johnson Space Center in Houston. Glenn funds this regolith simulant effort through the Dust Management Project, part of its Exploration Technology Development Program.

Coulter, a Schafer Corp. employee, supports the Office of Strategic Analysis & Communications.

‘Focus on Marshall’ highlights upcoming missions will pave the way to return to the moon

By Lori Meggs

Two spacecraft will soon be headed to the moon on the same rocket – each with distinctly different missions.

Viewers of the February episode of the Marshall Space Flight Center’s monthly video program “Focus on Marshall” will learn all about the missions of the Lunar Reconnaissance Orbiter and the Lunar Crater Observation and Sensing Satellite.

The lunar reconnaissance mission will deliver the most comprehensive atlas of the moon to date. The spacecraft will help scientists and engineers find safe landing sites, locate potential resources, characterize the radiation and thermal environment and demonstrate new technology.

The lunar crater mission is searching for the most precious resource to human life – water. If the spacecraft locates ice at one of the lunar poles, that discovery could have lasting consequences for the way humans are able to inhabit the moon.

Also in this month’s episode, viewers will get a firsthand look at flight hardware for the Ares I-X, the first flight test for the Ares I rocket. The segment features the rocket’s roll control system. It includes thrusters situated on opposite sides of the rocket, which fire to keep Ares I-X from rolling like a corkscrew or a spiraling football during the flight. The Marshall Center is responsible for the roll control system for the Ares I-X test flight, targeted for later this year.

“Focus on Marshall” airs on Marshall TV Feb. 12, 24 and 26 at 11 a.m., noon and 1 p.m. It also is available on NASA TV, Inside Marshall and on the NASA Portal.

Meggs, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Team Redstone to hold National African-American History Month Program on Feb. 17

Team Redstone – which includes the Marshall Space Flight Center team and U.S. Army organizations on Redstone Arsenal – will hold a National African-American History Month program at 10 a.m., Feb. 17, in Bob Jones Auditorium at the Sparkman Center, Building 5304. U.S. Rep. Artur Davis of Birmingham will speak. He will discuss the quest for black citizenship in the Americas. Winners of the National African-American History Month essay and display contest will be announced during the program. Visit Inside Marshall for a bus schedule to and from the event.

Rockets *Continued from page 1*

in fields critical to NASA’s mission: science, technology, engineering and mathematics.

Each student team will design, build and field-test one rocket, earning practical experience in the development and execution of a complex engineering project from design to launch. They must develop a vehicle that can fly to an altitude of 1 mile and sustain an onboard science experiment that gathers measurable data.

New to the challenge this year are teams from Arizona State University in Tempe; two teams from Embry-Riddle Aeronautical University in Daytona Beach, Fla.; Florida Institute of Technology in Melbourne; Georgia Institute of Technology in Atlanta; Iowa State University in Ames; Middle Tennessee State University in Murfreesboro; Mississippi State University in Starkville; Mitchell Community College in Statesville, N.C.; and Tuskegee University in Tuskegee, Ala.

Returning teams hail from Alabama A&M University in Huntsville; Auburn University in Auburn, Ala.; the College of Menominee Nation in Green Bay, Wis.; Fisk University in Nashville, Tenn.; Harding University in Searcy, Ark.; Missouri University of Science & Technology in Rolla; the University of Alabama in Huntsville; the University of North Dakota in Grand Forks; Utah State University in Logan; and Vanderbilt University in Nashville, Tenn.

“It’s our hope that this one-of-a-kind opportunity will have a meaningful, lifelong impact on the participants,” said Tammy Rowan, manager of Marshall’s Academic Affairs Office. “And we hope their schools and organizations will continue to nurture new generations who will explore, innovate and better our world by helping us travel to others across the solar system.”

The Exploration Systems Mission Directorate at NASA Headquarters in Washington sponsors the University Student Launch Initiative. Corporate sponsorship is provided by ATK Launch Systems of Promontory, Utah.

Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.

Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Feb. 19, is 4:30 p.m. Thursday, Feb. 12.

Miscellaneous

2005 Honda CRF70F motorcycle, $1,000; girl's bicycle, $50; kid's acoustic guitar, $50. 468-0305

52-inch Hitachi HD projection television, $800. 852-0996

Couch, love seat, $400. 509-5143

Set of new Teleflex leaf springs, 3-inch lift, for YJ Jeep, $250. 882-0461

Siberian Wolf fur jacket, size 8, pictures available, $250. 509-2536

Firewood, $80 per truckload. 755-0050

Generator, 10HP, 6225 watts, $700; 28-foot extension ladder, $175. 425-1762

Lily Flagg pool membership, $650. 881-0551

White Maytag washer/dryer, $400 obo; Oak Express dining table, chairs, $150 obo. 653-8366

Cedar fence posts. 682-7165

Queen bedroom suite, bed, dresser with mirror, chest of drawers, two nightstands, $650. 227-6023

Two prom dresses, black/purple, size 5-6, blue/white, size 7-8, $80 each. 520-1807

Golf wood covers, 5 & 9, VFT Big Bertha Hawkeye, $4 each. 797-7829

Pecans, this year's crop, shelled, $4 per pound; unshelled, $1.50 per pound. 931-2740

18.3 Frigidaire refrigerator, white, freezer on top, $200. 527-0110

TWO 24-inch bar stools, backs, matching desk chair, $150. 656-8507

Hotpoint side-by-side refrigerator, 26.9 cubic feet, black, water/ice dispenser, $275. 830-9507

Disney princess tricycle, removable parent push bar, canopy, $20. 777-1810

King-size waterbed, waveless mattress, pedestal type, drawers beneath, lighted/mirrored headboard, $100. 656-3196

Broyhill kitchen hutch, glass sides/doors/shelves, $395; five-piece indoor wicker set, $350. 975-1667

Canon Printer All-In-One, scanner, copier, PIXMA MP170, no ink, $27. 417-4828

Bassett queen bedroom suite, cherry, chest of drawers, two bedside tables, dresser, $1,000. 232-6626

2003 F-150 factory bedliner insert, $100. 880-6335

Four Bristol tickets, face value, March race. 777-8916

Selmer Mark VI tenor sax, $6,000; square table, lamp, shade, $25. 539-5439

Vehicles

2008 Keystone Sprinter travel trailer, 300kbs, two slides, $20,900. 233-3407

2008 Blue Honda Accord Coupe, black leather, ground effects, multi-CD/XM, iPod, 8,600 miles, $26,900. 604-9951

2008 Mustang GT Coupe, silver, leather, six-disc premium sound, Sirius, Bluetooth, 6,600 miles, $22,900. 724-1789

2007 660 Yamaha Rhino, 3K winch, light bar/lights, 1,700 miles, $7,000 obo. 221-6882

2006 BMW 325i, white/tan, loaded, 41k miles, $21,900. 883-6894 or 468-6894

2006 SL55 Mercedes AMG, loaded, hardtop convertible, silver, 14k miles. 830-5999

2005 Ford Five Hundred Limited, AWD, leather, power moon roof, 44k miles, $13,500. 975-1667

2002 Mercury Sable V6, four door, CD, 140k miles, $2,600 obo. 679-5220

2002 Dodge Grand Caravan ES or 2001 Chrysler Town & Country minivan LX, $5,200. 852-6952

2001 Kawasaki Bayou 300 4x4 ATV, red/black, less than 50 hours ride time, $2,700 obo. 828-9798

1996 Toyota 4Runner, 2WD, leather, sunroof, upgraded stereo with XM, 175k miles, $4,750 firm. 714-1941

1995 Astro van, seven passenger, loaded, high miles, $2,600. 776-0537

1992 BMW 318I, four door, five speed, new tires, $2,000. 837-4136

1991 Allegro Bay Class A Motorhome, 34 feet, all options, $12,000. 509-9612

1990 Chevrolet Astro work van, $2,000. 341-8470

1979 Mercedes SL450, cream, tan interior, motor has less than 75k miles, $9,500 obo. 729-0059

1972 Cutlass convertible, auto, all power, a/c, new tires/top/upholstery, 155k miles, $14,000. 881-7357

1969 Pontiac Catalina, miscellaneous interior/exterior parts, price negotiable. 797-7829

Wanted

Baby bed, dresser, changing table, all matching, prefer cherry. 759-3009

AKC/CKC male Shih-Tzu, for stud. 200-4018

Electrical work to do, wiring houses, detached garage, adding/removing lights, switches, plugs. 468-8906

Tree work, complete tree removal, trimming, stump grinding, clean up. 679-5799

Free

Two male black cats, littermates, never separated, scratchers, toys, tunnels. 337-3500

Found

Audio extension cable, Building 4200 area, Jan. 30. 544-4680

Shuttle Buddies to meet Feb. 23

The Shuttle Buddies will meet at 8:30 a.m. Feb. 23 at Mullins Restaurant on Andrew Jackson Way. For more information, call Deemer Self at 881-7757.

Marshall's Rocket Park stands tall under blue sky

On the way to the Marshall Space Flight Center's Badging Office in Building 4312, most team members pass the Rocket Park. Standing tall on the corner of Rideout and Mercury roads, the missile models signify the years of work the United States has invested in space exploration.

Rocket Park was established by the Army, then transferred to Marshall in 1960.

From left are the Hermes, German V-2, Saturn I, Jupiter, modified Redstone and Jupiter-C missiles. Hermes – a modified German V-2 – was designed as part of a research and development project begun by the U.S. Army in 1945. German V-2 was developed by the Wernher von Braun rocket team. Saturn I was the forerunner to the Saturn IB, which first launched in 1966. It paved the way for the Saturn V that launched astronauts to the lunar surface in 1969. The Jupiter was the first U.S. intermediate range ballistic missile. Monkeys Able and Baker rode a Jupiter missile into space in 1959. The modified Redstone launched America's first astronaut, Alan Shepherd, into space. The Jupiter-C launched the first U.S. satellite, Explorer I, on Jan. 31, 1958.

Vote for your favorite Earth Day logo by Feb. 13

All Marshall Space Flight Center team members are encouraged to help choose the center's 2009 Earth Day logo. Entries should reflect this year's slogan: "Just One Drop... PRICELESS."

Voting will end Feb. 13. The winner of the logo contest will be announced during the Earth Day celebration from 10 to 11 a.m., April 21, in Activities Building 4316. The winner will receive a $30 gift certificate to the Marshall Exchange Space Shop.

To vote, visit http://eemo.msfc.nasa.gov/environmental/eday/ballot.asp. For more information, contact Jeremiah Kolb at jeremiah.j.kolb@nasa.gov.

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